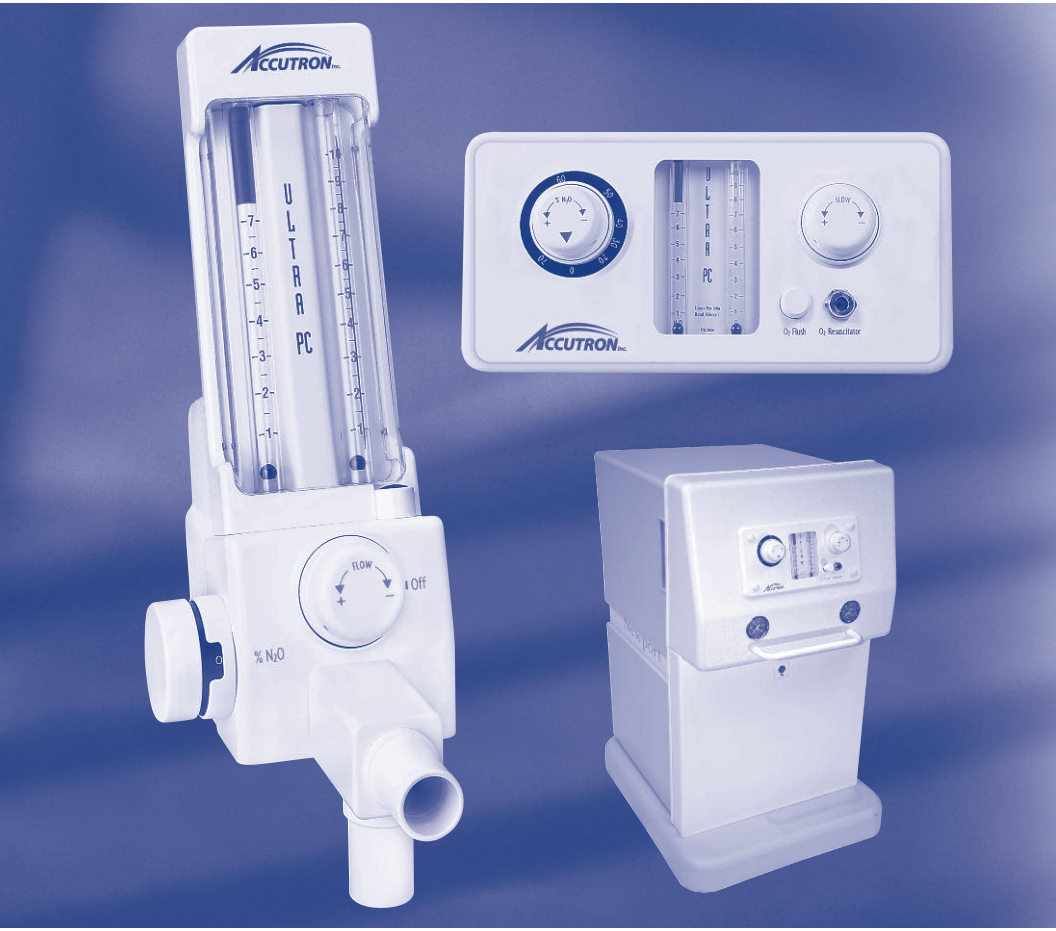
Ultra PC™ % Flowmeter User Manual



ACCUTRON Inc.

INDICATIONS FOR USE

To be used in nitrous oxide-oxygen sedation systems for delivering to a patient a mixture of nitrous oxide and oxygen gases with a maximum nitrous oxide concentration of 70%.

CONTRAINDICATIONS

Contraindications for use of nitrous oxide/oxygen inhalation may include:

1. some chronic obstructive pulmonary diseases;
2. severe emotional disturbances or drug-related dependencies;
3. first trimester of pregnancy;
4. treatment with bleomycin sulfate;
5. methylenetetrahydrofolate reductase deficiency.

Whenever possible, appropriate medical specialists should be consulted before administering analgesic/anxiolytic agents to patients with significant underlying medical conditions (e.g., severe obstructive pulmonary disease, congestive heart failure, sickle cell disease, acute oritis media, recent tympanic membrane graft, acute severe head injury.[1])

[1] American Academy of Pediatric Dentistry. Clinical Guidelines: Guidelines on Use of Nitrous Oxide for Pediatric Dental Patients. Pediatr Dent 2009;31(6):148-151. Available at: "http://www.aapd.org/media/policies.asp". Accessed February 23, 2010.

WARNINGS

To be used only by a professional trained in the use of nitrous oxide.

Patient should always be closely monitored during nitrous oxide use. If patient has an adverse reaction, reduce or stop the flow of nitrous oxide as needed. The O_2 flush button can be used to rapidly purge the lines of N_2O. If patient does not show signs of quick recovery, remove nasal hood and treat with pure oxygen from either the O_2 resuscitator fitting or an auxiliary oxygen tank using a demand valve, oxygen assisted manual resuscitator, or equivalent. Call for emergency assistance if rapid response is not achieved.

Do not use this device for the administration of general anesthesia or as part of, or in conjunction with, a general anesthesia administration system.

Unit is calibrated at the factory to ±5% per industry recommendations.

Verify that the correct gases are being delivered to the correct ports on the analgesia gas machine before initial use. This can be done by shutting off the oxygen cylinders in the tank room. Gases should not flow when flowmeters are turned on.

CAUTIONS

Federal (U.S.) law restricts this device to sale by or on order of a dentist or physician.

Do not attempt to repair, alter, or calibrate this device. Unauthorized repair, alteration or misuse of this device is likely to adversely affect the performance and will void the warranty.

Safety features contained in this notice should be routinely checked to assure proper function. If any of these safety features are not functioning properly, contact your dealer or Accutron and arrange for the necessary repairs before reusing the machine.

Always use clean, dry medical gases. Introduction of moisture or other contaminants into Accutron analgesia gas machines may result in defective operation.

INDICATIONS D'UTILISATION

Vous ne devez utiliser cette machine que dans des systèmes de sédation oxygène-oxyde nitreux qui livrent au patient un mélange de gaz d'oxyde nitreux et d'oxygène ayant une concentration maximale d'oxyde nitreux de 70%.

CONTRE-INDICATIONS

Les contre-indications sur l'inhalation d'oxyde azoteux/oxygène peuvent inclure:

1. certaines maladies respiratoires obstructives chroniques;
2. des troubles émotionnels graves ou des dépendances liées à la toxicomanie;
3. le premier trimestre d'une grossesse;
4. le traitement au sulfate bléomycinique;
5. une déficience en réductase d'acide tétrahydrofoliqueméthylène.

Dans la mesure du possible, consulter un spécialiste médical avant d'administrer des agents analgésiques/anxiolytiques aux patients qui présentent des troubles médicaux sous-jacents (par ex.: maladies respiratoires obstructives graves, défaillance cardiaque, drépanocytose, otite moyenne aiguë, greffon récent de la membrane du tympan, traumatisme crânien grave aigu.[1])

[1] American Academy of Pediatric Dentistry. Lignes directrices cliniques: Lignes directrices sur l'utilisation de l'oxyde azoteux pour les patients dentaires pédiatriques. Pediatr Dent 2009;31(6): 148-151. Disponible sur le site Web: "http://www.aapd.org/media/policies.asp". Accès le 23 février 2010.

AVERTISSEMENTS

Doit être utilisé uniquement par un professionnel formé dans l'utilisation de l'oxyde azoteux.

Le patient doit toujours faire l'objet d'une surveillance étroite pendant l'utilisation de l'acide azoteux. Si le patient présente des effets indésirables, réduire ou arrêter le débit de l'acide azoteux, selon le besoin. Le bouton de purge O_2 pour peut être utilisé pour évacuer rapidement les lignes de N_2O. Si le patient n'affiche aucun signe de récupération rapide, enlever l'enceinte nasale de hood et le traiter avec de l'oxygène pur, soit à partir du raccord du réanimateur O_2 ou d'une bouteille d'oxygène auxiliaire utilisant un détendeur, d'un réanimateur manuel assisté par de l'oxygène ou l'équivalent. Demander de l'aide d'urgence si une réponse rapide n'est pas obtenue.

Ne pas utiliser ce dispositif pour l'administration d'une anesthésie générale ou comme partie ou encore en conjonction avec un système d'administration d'anesthésie générale.

Unité est calibré à l'usine de ± 5% selon les recommandations de l'industrie.

Vérifiez que les gaz sont correctes livré dans les ports corrects sur la machine de gaz analgésique avant la première utilisation. Cela peut être fait en fermant les cylindres d'oxygène dans la chambre du réservoir. Les gaz ne doivant pas circuler lorsque les débimétres sont actirés.

ATTENTION

Conformément à la loi fédérale des États-Unis, cette machine ne peut être vendue que par un dentiste ou par un médecin ou sur leur ordonnance.

N'essayez jamais de réparer, de modifier ou de calibrer cet instrument. Toute réparation, modification non autorisée ou mauvais usage de cet instrument nuira considérablement à son rendement et annulera la garantie.

Vous devez vérifier couramment les caractéristiques de sécurité de cette brochure pour assurer un bon fonctionnement. Si l'une des caractéristiques de sécurité ne fonctionne pas bien, appelez votre revendeur ou Accutron et prenez les mesures nécessaires pour réparer votre appareil avant de l'utiliser à nouveau.

Utilisez toujours des gaz médicaux propres, secs. Toute introduction d'humidité ou d'autre contaminant dans un appareil d'analgésie à gaz Accutron provoquera un mauvais fonctionnement.

Table of Contents Page

Warnings and Cautions 2

I. Upright PC Unit

Basic Mechanics 8

Central System Mounting Options 9

Portable System Installations 10

II. Cabinet Mount Unit

Basic Mechanics 12

Sample Installation 13

III. Newport Portable System 14

IV. Safety Features 18

V. General Instructions 18

VI. Directions for Use 20

VII. Periodic Equipment Checks 21

VIII. Rubber Goods Attachment 23

IX. Emergency Oxygen Equipment 23

X. Troubleshooting Guide 24

XI. Warranty 25

XII. Warranty & Returned Goods Policy 26

XIII. Repair Service Policy 26

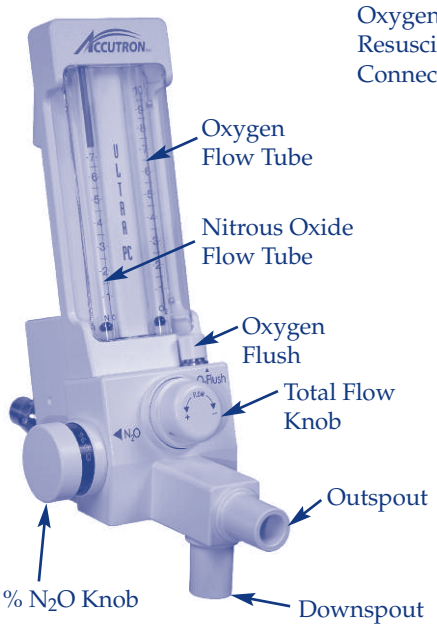
XIV. Assistance 26

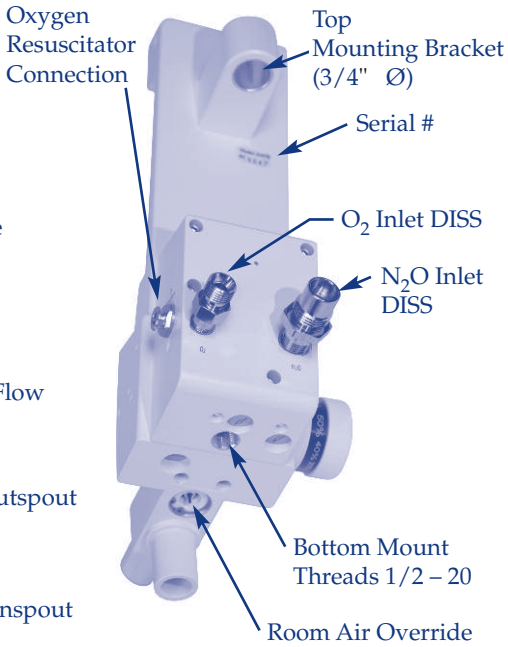
XV. Ownership Information 27

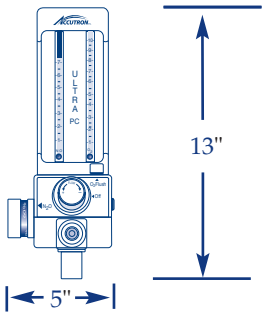
© 2011 Accutron, Inc.

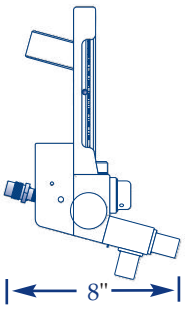
Part No. 25097 - Rev. 06 - 12/2011

I. PC UPRIGHT UNITS (For Portable & Central Systems)









TECHNICAL SPECIFICATIONS

Physical 5" x 13" x 8" (12, 7 x 33 x 20, 3 cm)
Weight 5.1 lbs (2, 3 kg)
Bottom mount: 1/2 – 20 Thread
Top Mount: 3/4 Diameter Hole

Gas Supply
- Oxygen: 50-55 PSI at 100 LPM
- N_2O: 50-55 PSI at 10 LPM

Gas Fittings
- Oxygen Inlet: Male DISS (CGA 124)
- N_2O Inlet: Male DISS (CGA 1040)
- Mixed Gas Outlet: O.D. .875" (2, 2)
- Oxygen Resuscitator: 1/4" I.D. Quick Disconnect

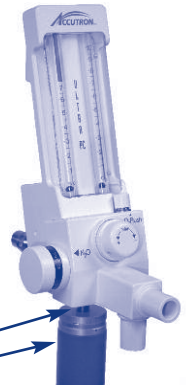
Gas Delivery
- Oxygen Flush: Min 20 LPM
- Oxygen Flow: 1 - 10 LPM (Accuracy, +/- 0.5 LPM)
- Oxygen Resuscitator : Min 100 LPM 100% O_2
- Nitrous Oxide Flow: 0 - 7 LPM (Accuracy +/- 0.5 LPM)
- Nitrous Oxide %: 0-70%*

*50% Max Units Available

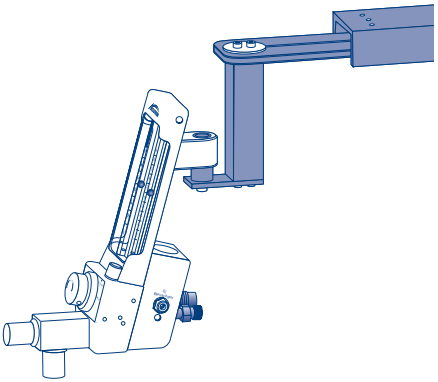
PC UPRIGHT CENTRAL GAS SYSTEM MOUNTING OPTIONS

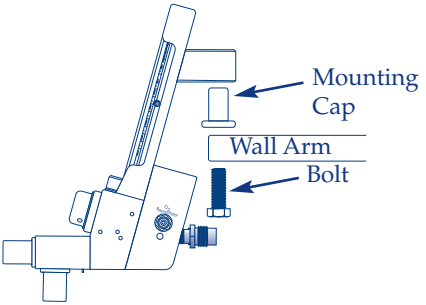
Mobile Stand (Bottom Mount)

2 Gas Supply
Lines Connect
To Wall Outlet

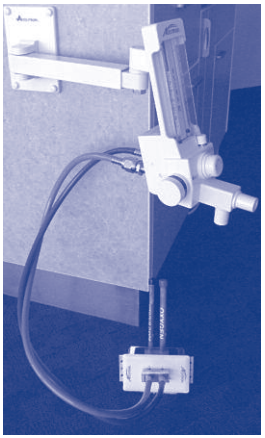


Under Cabinet Slide (Back Mount)

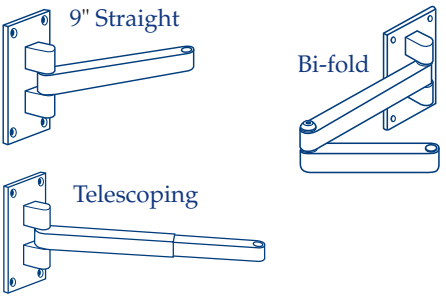




Wall Arm Mounts (Back Mount)



Choice of :

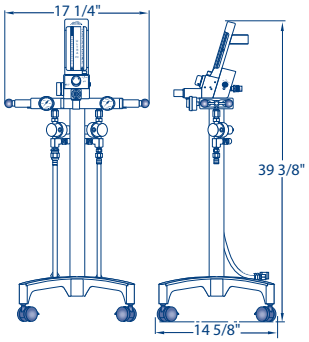


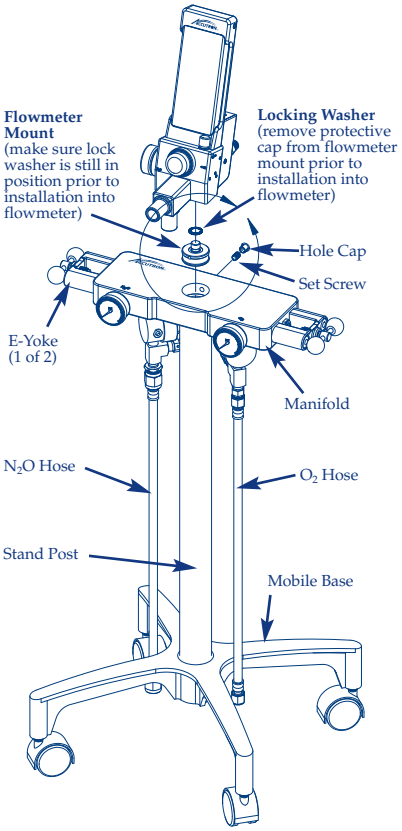
PC UPRIGHT 2-CYLINDER PORTABLE

2-CYLINDER PORTABLE SYSTEM ASSEMBLY

Identify the following components in the 2-cylinder portable system package:

- Flowmeter
- Portable Manifold (with DISS Hoses and mobile stand attached)
- E Cylinder Wrench (with chain attached)




Flowmeter Mount (make sure lock washer is still in position prior to installation into flowmeter)
Locking Washer (remove protective cap from flowmeter mount prior to installation into flowmeter)
Hole Cap
Set Screw
E-Yoke (1 of 2)
Manifold
N2O Hose
O2 Hose
Stand Post
Mobile Base

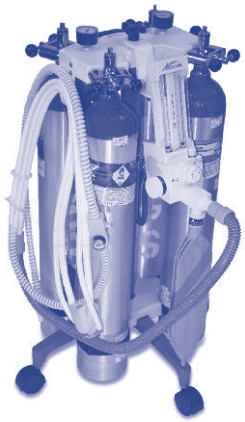
1. Mount the flowmeter to the portable manifold:
   a. Remove hole cap from the upper hole (use sharp edge knife or screwdriver) at rear of manifold and release set screw (use 5/32" Allen Wrench) enough to remove flowmeter mount.
   b. Remove protective cap from threads of mount and remove from manifold. Thread flowmeter mount into hole on the bottom of flowmeter by hand and tighten firmly using 5/32" Allen Wrench placed in hole on side of flowmeter mount.
   c. Place flowmeter on manifold with mount in pocket.
   d. Tighten set screw firmly from rear while keeping flowmeter oriented toward front of manifold.
   e. Place hole cap into hole behind the set screw and push it all way in.
2. Attach the hoses to the flowmeter:
   a. Run the nitrous oxide hose under the manifold and attach it to the nitrous oxide DISS fitting located on the back of the flowmeter.
   b. Run the oxygen hose under the manifold and attach it to the oxygen DISS fitting located on the back of the flowmeter.

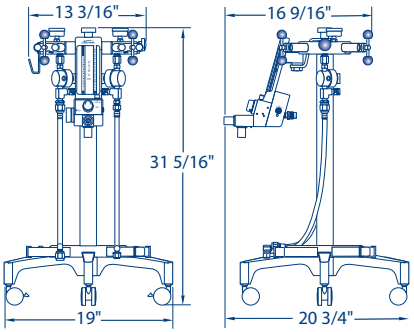
Note: To avoid gas leaks, make certain all hose attachments are securely tightened.

3. Connect the gas cylinders to the manifold's "E" yokes:
   a. Connect the nitrous oxide gas cylinders to the "E" yoke on the N_2O side
   b. Connect the oxygen gas cylinders to the "E" yoke on the O_2 side.
   c. It is recommended to use new gasket every time tank is replaced or removed.
4. (Keep wrench in handy location. It is used to open and close tanks).
   a. Open both gas cylinders and turn off flowmeter.
   b. Check hose connections for leaks using soap solution.
   c. Tighten fittings as needed to stop leaks.
5. Verify flowmeter operations.

Note: See page 23 for attaching rubber goods, including scavenging circuit.

PC UPRIGHT 4-CYLINDER PORTABLE

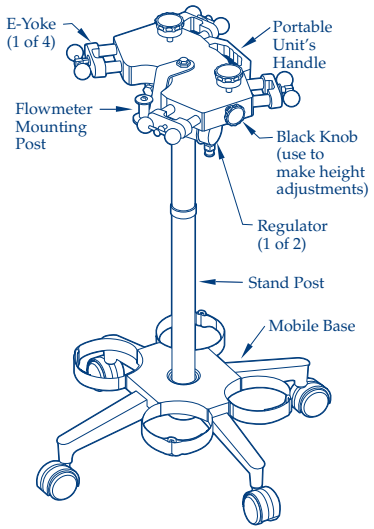




4-CYLINDER PORTABLE SYSTEM ASSEMBLY

Identity the following components in the 4-cylinder portable system package:

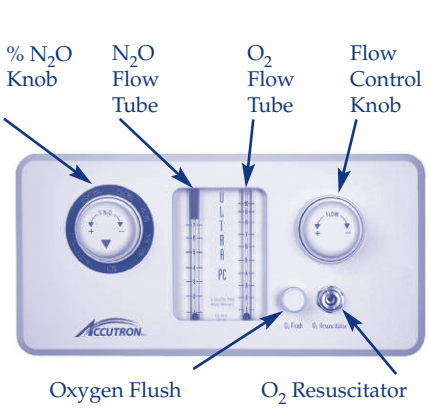
- Flowmeter
- Portable Manifold (with DISS hoses and adjustable mobile stand attached)
- "E" Cylinder Wrench (chain attached)

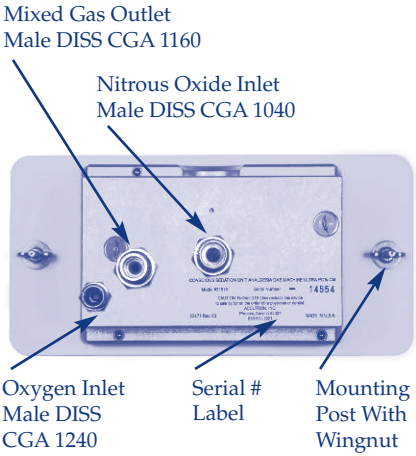


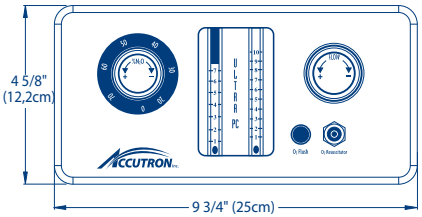
1. Mount the flowmeter to the portable manifold:
   a) Remove the screw and washer from the top of the flowmeter mounting post (located on the manifold).
   b) Slip the fixed loop (located at the back of the flowmeter) over the mounting post.
   c) Re-attach the washer and screw to the top of the mounting post.
2. Attached the hoses to the flowmeter:
   a) Run the nitrous oxide hose under the manifold and attach it to the nitrous oxide DISS fitting located on the back of the flowmeter.
   b) Run the oxygen hose under the manifold and attach it to the oxygen DISS Fitting located on the back or the flowmeter.
   Note: To avoid gas leaks, make certain all hose attachments are securely tightened.
3. Connect the gas cylinders to the manifold's E-yokes:
   a) Connect the nitrous oxide gas cylinders to the nitrous oxide "E" yokes.
   b) Connect the oxygen gas cylinders to the oxygen "E" yokes.
4. To adjust the portable flowmeter unit's height:
   a) Loosen the black knob on the side of the manifold.
   b) Guide the stand post's adjustable rod to desired position.
   c) Retighten the black knob.

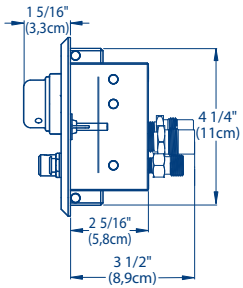
Note: See page 23 for attaching rubber goods, including scavenging circuit.

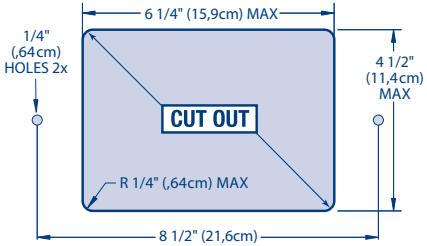
II. PC CABINET MOUNT UNIT (For Central Gas Systems)











TECHNICAL SPECIFICATIONS

Physical 5" x 10" x 4" (13 x 25 x 10 cm)
Weight 5.9 lbs (2, 7 kg)

Gas Supply Requirement

Oxygen: 50-55 PSI at 100 LPM
N_2O: 50-55 PSI at 10 LPM

Gas Fittings

Oxygen Riser: Male DISS (CGA 1240) with check valve
N_2O Riser: Male DISS (CGA 1040) with check valve

CM Fittings

Oxygen Inlet: Male DISS (CGA 1240)
N_2O Inlet: Male DISS (CGA 1040)
Mixed Gas Out: Male DISS (CGA 1160)
Oxygen Resuscitator: 1/4" I.D. Quick Disconnect

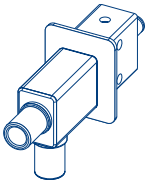
Gas Delivery

Oxygen Flush: Min 20 LPM
Oxygen Flow: 1 - 10 LPM (Accuracy, +/- 0.5 LPM)
Oxygen Resuscitator: Min 100 LPM 100% O_2
Nitrous Oxide Flow: 0 - 7 LPM (Accuracy +/- 0.5 LPM)
Nitrous Oxide %: 0-70%*
*50% Max Units Available

Note: Cabinet Mount units require remote outlet.

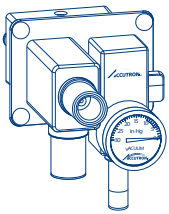
SAMPLE INSTALLATION

Remote Outlet Options:



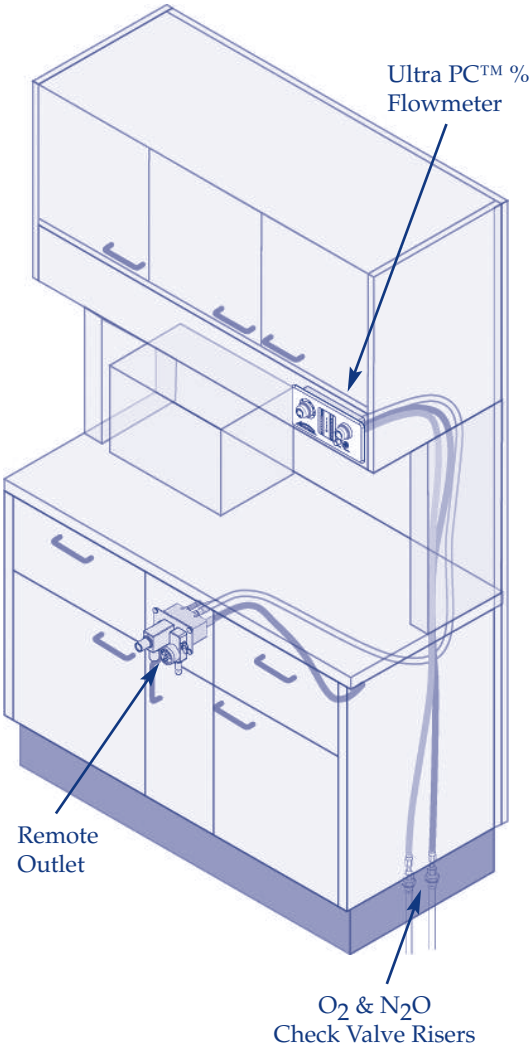
a) Standard Bag Tee

(Contains mixed gas outlet)



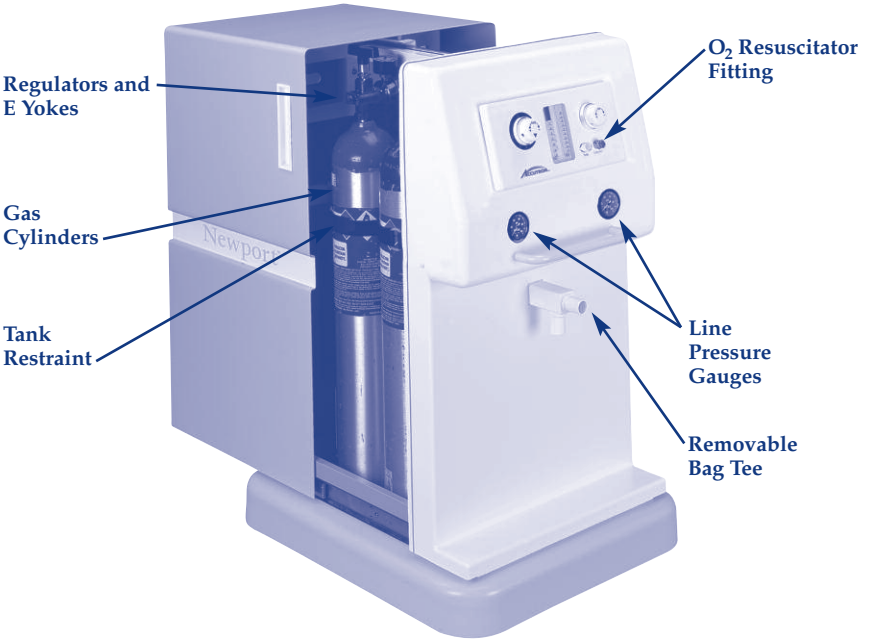
b) Remote Flow System (RFS)

(Contains mixed gas outlet, and vacuum controller with gauge display)



Note: See page 23 for attaching rubber goods, including scavenging circuit.

III. Newport 4-Cylinder Portable"



Newport Setup and Connections

View
When looking at the front of the Newport cabinet, Nitrous Oxide is on the left as shown by the blue Nitrous Oxide gauge. Oxygen is on the right as shown by the oxygen gauge.

Opening Newport Cabinet
Open the Newport cabinet by placing one hand on the front cover and the other in the handle on the side. Pull handle back all the way.

Install Gas Cylinders
1. Undo Velcro straps
2. Angle tank into position
3. Strap tanks loosely
4. Remove regulators from accessories box
5. Attach regulators to tanks by loosening yoke handle, verifying seal is in place, aligning seal with gas opening, aligning pins with holes in yoke, tightening yoke onto cylinder

NOTE: Regulators are pinned to match gas cylinders. Connect gas hoses to regulator outputs.

NOTE: Hoses and regulators use DISS fittings to prevent mix up. Rotate cylinders so that regulators fit inside.

Open Gas Cylinders
Pick one tank of each gas to be “in use“ tank and attach “in use” label to cylinder. Open these cylinders using the cylinder wrench provided in accessory box. Close Newport cabinet.

Scavenging Circuit
- Install bag tee from accessories box into front of Newport.
- Attach scavenging circuit to bag tee.
- Connect vacuum hose to system vacuum.
- Install nasal hood into scavenging circuit and start vacuum flow per scavenging instructions.

Newport: Managing Gas Supply

1. Identify the two in-use tanks (N_2O and O_2) by attaching "in-use" identification tags to them.
2. When one of the in-use tanks is empty, close the tank by turning the valve clockwise. Leave the empty tank in place.
3. Move the "in-use" tag to the appropriate reserve tank, which now becomes the in-use tank. Replace the empty tank with a new tank, which then becomes the reserve tank.
4. Open the valve of the new in-use tank by turning counterclockwise.
   Note: Do not open the reserve tank until the in-use tank is empty. When changing gas tanks, make certain both same gas cylinders that are involved in the exchange are closed. Always remember to switch the "in- use" tags over to the new tanks.
5. Contact gas supplier to request new gas cylinders as needed.

Newport: Changing Gas Cylinders

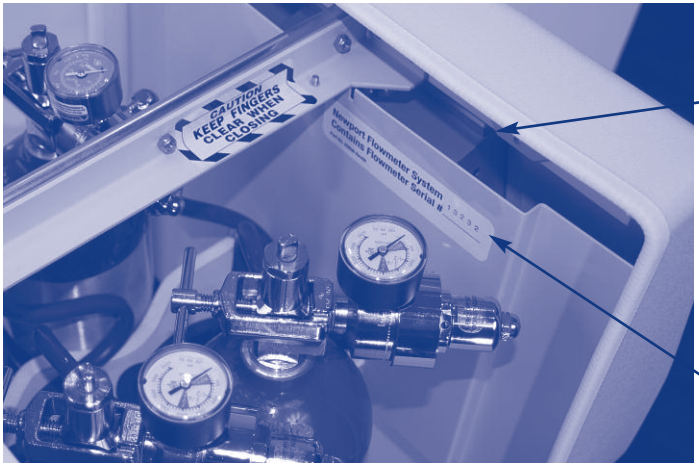
Always use clean, dry medical grade gases. Introduction of moisture or other contaminants into Accutron Analgesia gas machines may result in defective operation.

The Newport Flowmeter System is designed to operate with a 50-55 psi line pressure on each gas (O_2 and N_2O). The line pressure can be determined by reading the O_2 and the N_2O line pressure gauges that are located on the front panel of the Newport.

The Newport has features incorporated to make cylinder change-out easy. To assure proper operation of the system, 4 cylinders must be properly installed at all times. Please review the following cylinder replacement procedures before attempting to change cylinders.

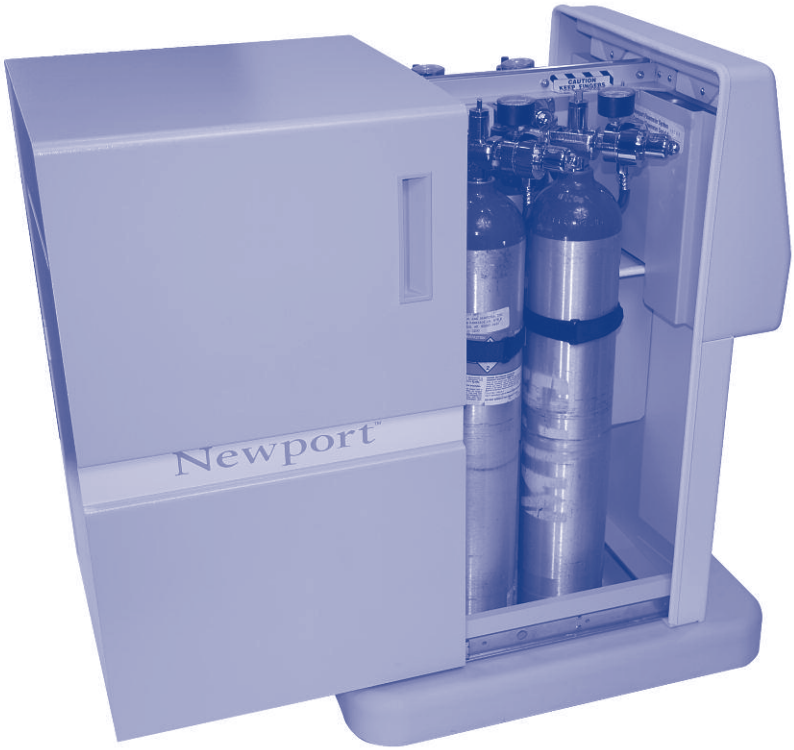
1. Open the tank enclosure by sliding the cover to the rear.
2. Close the valve on the empty tank (clockwise).
3. Release the Velcro restraint on the empty tank.
4. Tilt the empty tank out slightly.
5. Loosen the round handle on the regulator yoke.
6. Remove the regulator from the empty tank (make certain that the regulator is not dropped or damaged while it is off the tank).
7. Lay the empty cylinder down on the floor (cylinders should only stand upright when properly restrained as they can easily fall over).
8. Pick up the full replacement tank and place the bottom of the tank onto the floor of the Newport, leaving it slightly tilted outward for easy replacement of the regulator.
9. Check to assure that the sealing gasket has remained on the regulator's E yoke.
10. Reattach the regulator to the new full tank by sliding the yoke (attached to the regulator) over the top of the tank post aligning the index pins with the corresponding holes in the tank post.
11. Tighten the round handle on the regulator yoke.
12. Push the tank into an upright position. Attach and tighten the Velcro tank restraint.

Newport: Accessing Serial Number



Flowmeter is behind shield at front of unit.

Serial # Label



IV. SAFETY FEATURES

O_2 Fail Safe System – Offers assurance that N_2O ceases if the O_2 supply is interrupted or reduced.

Emergency Air Valve – Automatically provides patient with ambient air if gas flow is interrupted. Located on remote bag tee.

Directional Check Valve – Prevents re-breathing of exhaled gases and protects against CO_2 buildup. Located on remote bag tee.

O_2 Resuscitator Connection – Direct connection to O_2 for use with resuscitator. Port is always open and provides 100 LPM minimum of pure oxygen.

V. GENERAL INSTRUCTIONS

1. Warranty

Unpack flowmeter and inspect to make certain that the unit has not been damaged during shipment.

The unit's serial number is located on the back of the flowmeter (see page 17 for Newport's serial number location). Record the serial number in the area provided at the back of this booklet. Note: After Cabinet Mount model is mounted into a cabinet, the serial number will no longer be visible. Always reference the serial number when corresponding with Accutron.

Complete the warranty card supplied with flowmeter Ultra and mail to Accutron. Completion of this step ensures proper device warranty coverage. Accutron analgesia machines carry a two-year limited warranty (see Warranty on page 25 for details).

2. Gas Supply Connection

Always use clean, dry medical gases. Introduction of moisture or other contaminants into Accutron analgesia gas machines may result in defective operation.

After device installation, connect the oxygen and nitrous oxide supply lines to the Diameter Specific Instant fittings or DISS fittings located on the back of the device. See pages 15 and 16 for information specific to the Newport. It is important that the regulators for both gases be set to give pressures in the range of 50-55 PSI.

Verify that the correct gases are being delivered to the correct ports on device before initial use. This can be done closing O_2 gas cylinders, opening N_2O gas cylinders, and attempting to use flowmeter. Turn Total Flow Knob all the way open and % N_2O Knob all the way to 70%. There should be no gas flow. If either gas tube shows flow, gas lines may be crossed internally. Turn off unit and call Accutron before use.

3. CLEANING AND DISINFECTING THE FLOWMETER

Cleaning:
Clean flowmeter by wiping with moistened towel or spraying with disinfectant and wiping surface. If the disinfectant does not contain a cleaning agent, use a mild cleaner for this step.

Disinfecting:
Any of the following commercially available disinfectants can be used for disinfecting the flowmeter surface:

Commercial Brand Name	EPA Registration No.	EPA Establishment No.
Lysol Brand II I.C. Disinfectant Spray	777-72-675	777-NJ-2
EcoTru (Spray)	70791-1	034490-CA-001
CaviCide	46781-6	46781-MI-1
Microstat 2 Tablets	70369-1	69781-MN-01

Note: Reference the disinfectant's label instructions for appropriate application procedures and inactivation of specific organisms. Care should be taken not to let disinfectant seep into flowmeter's sealed areas.

Barriers:
Barriers that are impervious to fluids are an acceptable alternative to chemical disinfection of environmental surfaces. In some cases, barriers may be the best way to prevent cross-contamination of equipment surfaces that are difficult to clean or that may be harmed by disinfectants. Choose barriers that are large enough to cover the area of concern, impervious to fluids such as blood and saliva, and do not impede the use of the device or equipment they cover. Change barriers between each patient.

VI. DIRECTIONS FOR USE

Read instructions completely before operating flowmeter device.

> **Note: The steps listed below provide a basic functional description of the flowmeter usage. A training course that emphasizes a practical, hands-on approach combined with instructions on safe techniques for administration of nitrous oxide-oxygen conscious sedation is recommended before use of this flowmeter.**

Reference flowmeter diagrams on pages 8 or 12 to locate control knobs for appropriate flowmeter model.

1. Turn on unit and open valves on top of both the N_2O and O_2 "in-use" tanks.

2. Using Flow Knob, set oxygen flow rate to desired delivery level.

   > **Note: When the N_2O is set at 0 and the Total Flow Knob is turned to the on position, the N_2O ball might move rapidly from the bottom of the N_2O flow tube and then immediately return to its resting place at the bottom of the flow tube. This is a normal occurrence and not an indication of malfunction.**

3. Set % N_2O Knob to desired percent level.

4. Adjust the total flow rate to the patient by turning the Flow Knob as follows:

Turn the Flow Knob in a counter-clockwise direction to increase flow rate and in a clockwise direction to decrease flow rate. Total flow rate is the sum of the N_2O flow rate and the O_2 flow rate (Total flow rate = N_2O flow rate + O_2 flow rate).

The numbers shown on the N_2O Knob represent "% N_2O of Total Flow." These numbers are a guide to assist the doctor in adjusting the N_2O flows. Accutron recommends the doctor always use O_2 and N_2O flow rates indicated in the flow tubes to calculate the N_2O and O_2 percentages. % N_2O of Total Flow is calculated using the following formula:

$$\%\ N_2O = \frac{N_2O\ \text{Flow Rate}}{N_2O\ \text{Flow Rate} + O_2\ \text{Flow rate}} \times 100$$

(See chart for calculating % N_2O on p. 21)

5. When the procedure is nearing completion and the patient is placed on O_2 only, make the following adjustments:

   Turn the % N_2O Knob to zero and turn the Flow Knob in a counter-clockwise direction to increase O_2 flow.

6. When the procedure is complete, turn the Flow Knob fully in a clockwise direction and make certain the unit is off.

7. At the end of each day turn off gas supply at the tanks. For 2-cylinder and 4-cylinder models, close N_2O cylinders and run N_2O through flowmeter until trapped gas is gone and gauge reads empty. Turn off O_2 cylinders and run O_2 gas until O_2 gauge reads empty.

VII. PERIODIC EQUIPMENT CHECKS

Quick Reference Chart for Calculating % N_2O

N_2O Flow LPM	O_2 Flow LPM 1	2	3	4	5	6	7	8	9	10
10					67%	63%	59%	56%	53%	50%
9				69%	64%	60%	56%	53%	50%	47%
8				67%	62%	57%	53%	50%	47%	44%
7			70%	64%	58%	54%	50%	47%	44%	41%
6			67%	60%	55%	50%	46%	43%	40%	38%
5			63%	56%	50%	45%	42%	38%	36%	33%
4		67%	57%	50%	44%	40%	36%	33%	31%	29%
3		60%	50%	43%	38%	33%	30%	27%	25%	23%
2	67%	50%	40%	33%	29%	25%	22%	20%	18%	17%
1	50%	33%	25%	20%	17%	14%	13%	11%	10%	9%

Check monthly

Oxygen Flush Valve Test

1. Make certain the % N_2O Knob and Flow Knob are turned fully clockwise (off position).
2. Reservoir bag should remain connected to the bag tee downspout.
3. Disconnect the corrugated tube from the bag tee outspout.
4. Open Oxygen Flush Valve while blocking the flow from the bag tee outspout.

Proper operation is indicated when the reservoir bag is filled in 5 - 10 seconds. Release blockage of oxygen flow from bag tee outspout after the 5 - 10 seconds, required to conduct the test, has elapsed.

Outspout Check Valve Test

Check monthly

1. Flowmeter should be in the off position.
2. Reservoir bag should be connected to the downspout of the bag tee.
3. Corrugated tube should be connected to the outspout of the bag tee but not connected to patient gas delivery tubing.
4. Breathe into the open end of the corrugated tube.

The reservoir bag should not fill. If the bag does fill during this test, the Outspout Check Valve is not functioning properly. Do not use this analgesia gas machine prior to receiving technical assistance or repair.

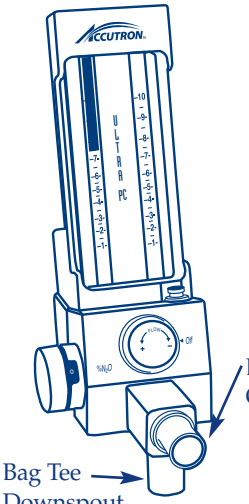
Override Air Valve Test

Check monthly

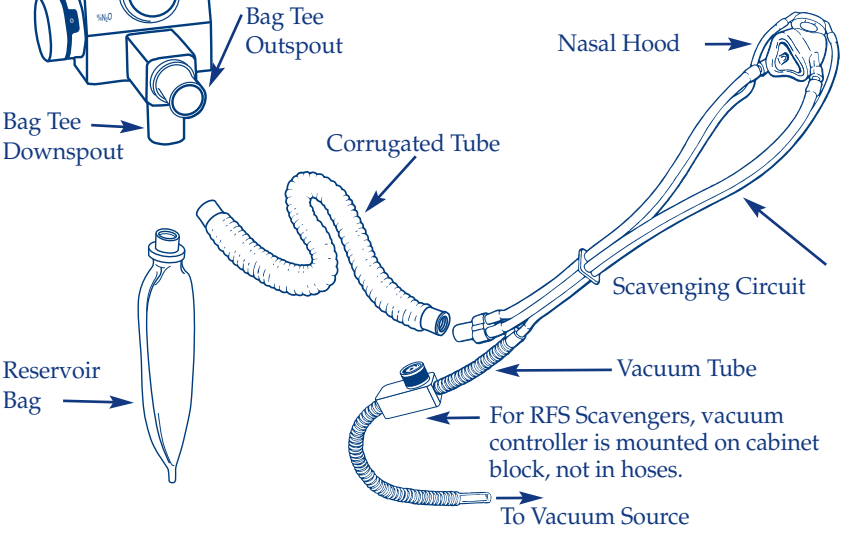
1. Flowmeter should be in the off position.
2. Reservoir bag should be connected to the downspout of the bag tee.
3. Corrugated tube should be connected to the outspout of the bag tee but not connected to patient gas delivery tubing.
4. Draw air through the open end of the corrugated tube.

The Override Valve on the bag tee should open and allow air to enter the corrugated tube. Place your finger over the Override Valve and remove it to verify that air is entering the bag tee through the Override Valve. If the Override Valve does not function as described, do not use this analgesia gas machine prior to receiving technical assistance or repair. This test is best performed when the reservoir bag is completely deflated.

VIII. RUBBER GOODS ATTACHMENT

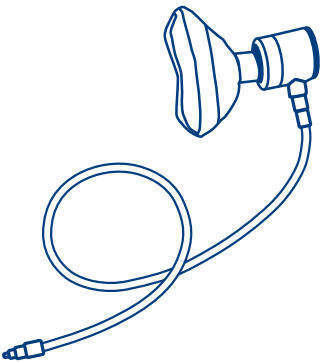


1. Slide the opening of the reservoir bag over the outside of bag tee downspout.
2. Attach the corrugated tube over the outside of bag tee outspout.
3. Connect "Y" connector of scavenging circuit to the inside of the corrugated tube.
4. Connect scavenging vacuum tube to vacuum source.



IX. EMERGENCY OXYGEN EQUIPMENT

Accutron flowmeters are equipped with a resuscitation connector which allows for the attachment of an oxygen demand valve. See Accutron Catalog (Emergency Oxygen Equipment Section) for information regarding Accutron Portable Oxygen System and Accutron Demand Valve.



X. TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	REMEDY
No flow of O_2 or N_2O when On-Off is on and N_2O Knob is set at concentration of N_2O or O_2 Knob is open to give flow.	1. O_2 and/or N_2O supply not turned on. 2. Analgesia gas machine not connected to source. 3. Empty O_2 or N_2O gas cylinders.	1. Turn on O_2 or N_2O gas supply in tank room or on portable unit. 2. Connect to wall outlet. 3. Replace with full cylinders.
Can get O_2 flow, cannot get N_2O flow.	1. N_2O supply not turned on. 2. N_2O cylinder empty. 3. O_2 line pressure low, activating fail-safe.	1. Turn on N_2O tank. 2. Replace with full cylinders. 3. Check O_2 gas line pressure. Be certain O_2 pressure is 50-55 psi. If not, call dealer for service.
With N_2O concentration set, both flows vary proportionally with no change in flow setting.	O_2 or N_2O regulator is not maintaining system pressure.	Check gas line pressure. Be certain line pressure is 50-55 psi. If not, call dealer for service.
Cannot get 10 lpm O_2 flow with N_2O Knob at zero and O_2 Knob open fully counter-clockwise.	Low O_2 pressure setting.	Check O_2 regulator. Be certain O_2 pressure is 50-55 psi. If not, call dealer for service.
With O_2 Knob at zero, N_2O flows are indicated.	Fail-safe system not functioning properly.	Remove from service and return to dealer or Accutron, Inc., for service. Do not use unit until repaired.

XI. WARRANTY

ACCUTRON 2-YEAR FLOWMETER LIMITED WARRANTY

IF AN ACCUTRON FLOWMETER NEEDS TO HAVE REPAIR WORK OR REPLACEMENT PARTS DURING THE 2-YEAR WARRANTY PERIOD DUE TO MANUFACTURING DEFECTS, ACCUTRON WILL PROVIDE THE PARTS AND LABOR AT NO CHARGE. THE FLOWMETER OWNER IS RESPONSIBLE ONLY FOR A $35.OO SHIPPING AND HANDLING FEE, WHICH WILL BE ASSESSED EACH TIME A FLOWMETER IS RETURNED TO ACCUTRON FOR WARRANTY WORK.

WARRANTY TERMS

Limited Warranty and Disclaimer: Accutron ("Seller") warrants that its product will be free from manufacturing defects subject to the terms, conditions, and limitation set forth hereinafter, for a period of 2 years for flowmeters and 1 year for other equipment products. Seller's obligations under this limited warranty are contingent on Buyer's full payment of the product purchase price. Except as specifically set forth above, Seller and its affiliates make no warranties, expressed or implied, and specifically disclaim any warranties of merchantability or fitness for a particular purpose.

The liability of Seller and its affiliates for any claims, losses, damages, or expenses from any cause whatsoever (including acts or omissions of third parties) regardless of the form of the action, whether in tort, contract, or otherwise, shall not exceed the repair cost, replacement cost, or purchase price of the product that directly gives rise to the claim. Seller and its affiliates shall not be liable for any incidental, special, reliance, consequential, or indirect loss or damage rising out of this agreement or the products. As used in this paragraph, consequential damages include, but are not limited to, lost profits, lost revenues, property damage, personal injury damage to the Purchaser or third parties, loss of business or profits, and/or loss of business reputation. It is the sole responsibility of Purchaser to determine the suitability of the products for the Purchaser's intended use. Seller's obligation to repair, replace or refund, as set forth above shall be Buyer's exclusive remedy.

This warranty constitutes the entire warranty. This warranty and Seller's liability hereunder shall be construed according to the laws of the State of Arizona without regard to conflict of lay principles.

To activate the Flowmeter Warranty, complete and mail the warranty registration card that accompanies Flowmeter.

Accutron warranties are subject to the following conditions: Accutron products and equipment are warranted to be free from defects in material and workmanship under normal use and service, including all component parts. This warranty shall not apply to defects resulting from accidents, alterations, or misuse. If modifications have affected the operation of the product to render it faulty, this warranty shall be void. This warranty shall be void if any part not of Accutron's manufacture or supply has been incorporated into the product.

THIS WARRANTY IS GIVEN IN PLACE OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.

No statement or claim about the product by any employee, agent, representative or dealer of Accutron, Inc. shall constitute a warranty by Accutron, Inc. or give rise to any liability or obligation of Accutron, Inc.

XII. WARRANTY AND RETURNED GOODS POLICY

All warranty resolution issues and merchandize returns will be handled through the local authorized Accutron distributor. Contact distributor where unit was purchased.

XIII. REPAIR SERVICE POLICY

All service issues will be handled through the local authorized Accutron distributor. Contact distributor where unit was purchased. Check Troubleshooting Guide on page 24 prior to contacting distributor.

XIV. ASSISTANCE

For Assistance, contact your local dental distributor or call Accutron Customer Service at:

Toll-free: (800) 531-2221
Local: (623) 780-2020
Fax: (623) 780-0444

Hours of operation: 7:00 AM – 4:30 PM MST

Service ship-to address:
Accutron, Inc.
1733 W. Parkside Lane
Phoenix, AZ 85027

Visit our website:
www.accutron-inc.com

EC REP
MT Promedt Consulting GmbH
Altenhofstrasse 80
D-66386 St. Ingbert/Germany
Tel. +49 6894 581020
Fax +49 6894 581021

CE 0482

Accutron, Inc.
Phoenix, AZ 85027

XV. OWNERSHIP INFORMATION

Dr. Name: _____

Street Address: _____

City/State/Zip: _____

Accutron Flowmeter Unit Model:

- ❑ Ultra PC %
- ❑ Ultra PC % Cabinet Mount
- ❑ Newport

Flowmeter Serial Number: _____

1733 W. Parkside Lane • Phoenix, Arizona 85027
Toll-free: 800-531-2221 • Local Phone: 623-780-2020 • Fax: 623-780-0444
www.accutron-inc.com